

METHOD AND APPARATUS FOR DETECTING STEREO DISPARITY IN  
SEQUENTIAL PARALLEL PROCESSING MODE

ABSTRACT OF THE DISCLOSURE

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A stereo disparity between a scanning image and a reference image is detected based on similarities measured by counting the number of pixels having lower differential brightness than a threshold in matched scanning windows. The matched scanning windows are centered at a scanning pixel within a scanning range, respectively.

- 10 The matched scanning window has the same size with a reference window centered at a reference pixel. The scanning range is defined by the constraint related to the image-picturing conditions. The differential brightness is obtained by comparing the brightness of each pixel in each scanning window to that of each pixel in the reference window. An apparatus for detecting a stereo disparity comprises a strip-processing unit
- 15 for calculating in parallel similarities of matched scanning columns in the scanning range to a reference column centered at the reference pixel. An S-buffer stores similarities calculated by the strip-processing unit. A WMC-unit calculates WMC values of matched scanning windows in the scanning range with respect to the reference window using the similarities of the matched scanning columns stored in the S-buffer.
- 20 A Max\_WMC selection unit selects the greatest value among WMC values calculated by the WMC-unit to output a shift from the scanning pixel corresponding to the reference pixel to the center pixel of the matched scanning window associated with the greatest WMC value as a disparity mark of the stereo disparity.